ABSTRACT

Automatically generating components of an object modeled in a three-dimensional modeling space by a computer aided design system includes positioning a plane in the three-dimensional modeling space to (i) logically subdivide the modeling space into a first division that includes an existing component and a second division in which a reproduction of the existing component is to be located and (ii) to define a reference geometry for creation of the reproduction of the existing component. A number of geometrically transformed components are computed by applying a series of different transformations to the existing component such that each transformed component has a different orientation. A reproduction of the existing component is constructed such that the existing component and the reproduction are symmetrical to each other with respect to the plane.